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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/729,157
Filing Date: December 08, 2003
Appellant(s): SILVERBROOK, KIA

Kia Silverbrook
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed November 11, 2009 appealing from the Office action mailed July 20, 2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The Examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The Appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 5,847,836 | Suzuki | 12-1998 |
| 7,347,863 | Yuen | 2-2002 |
| 5,600,358 | Baldwin et al. | 2-1997 |

**(9) Grounds of Rejection**

The following grounds of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**Claims 1, 3, 4 and 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,847,836) in view of Yuen (US 6,347,863 B1).

For **Claims 1 and 8**, Suzuki discloses, as shown in figures 1 and 2, a printhead assembly (P) for a camera system (1) having a chassis (not labeled; but clearly shown in figure 1) and a platen assembly (10, 68, 6, 18, etc.) that is mountable on the chassis (again clearly shown in figure 1), the platen assembly (10, 68, 6, 18, etc.) defining a printing path (The total direction "a→" until the end of the platen assembly and the total direction "←b" until the other end of the platen assembly is considered by the Examiner to be the claimed "printing path") along which a print medium (11) is passed, the print head assembly (P) comprising:

an elongate ink reservoir assembly (5) at least a *plurality of ink reservoirs* for storing ink (By using an "integrated printhead", as indicated in Suzuki in column 16, lines 43-48, to provide a multi-color print mode; the ink reservoir assembly must be divided into at least two separate sections that each contain ink of a different color. Of course, each one of those different sections must be provided with an ink path that opens at the outlet. Thus, the printhead in Suzuki has plurality of ink reservoirs);

a guide assembly (not specifically shown; but necessary for proper operation) positioned in the elongate ink reservoir assembly (5), the guide assembly defining *a plurality of discrete ink paths* facilitating fluidic communication between each of *the plurality of ink reservoirs* and an outlet of the elongate ink reservoir assembly (Again see column, lines 43-48); and

at least one *electrical component* (the combined total of all "electrothermal transducer" in the ink reservoir assembly) positioned at the outlet ( the total of all "discharge opening"/"discharge nozzles") of the elongate ink reservoir assembly (5), the at least one *electrical component* (the combined total of all "electrothermal transducer" in the ink reservoir assembly) substantially spanning a width of the printing path (see column 16, lines 17-24).

Suzuki discloses a bubblejet type printhead (5) that spans the width of the recording medium (see column 16, lines 17-24). Suzuki specifically states, "as a full line type printhead having a length corresponding to the width of a maximum printing medium which can be printed by the printer, either the arrangement which satisfies the full-line length by combining a plurality of print heads as disclosed in the above specification or the arrangement as a single printhead obtained by forming print heads integrally can be used."

Suzuki teaches, as stated in column 16, lines 17-24 and 43-48, that the printhead ink reservoir assembly may be a multi-color printhead that is comprised of a series of adjacent ink reservoirs, each with at least one ink channel and a plurality of corresponding discharge nozzles and discharge openings, or a single integrated ink reservoir with a plurality of ink channels therein each with corresponding discharge nozzles and openings. In either case, the bubble jet print heads require an electrical component, at the base of each ink channel, in the discharge nozzles to generate the ink bubbles. Suzuki doesn't specify the details of the electrical

component, but incorporates the specific printhead technology by reference, via US Patent 4,558,333 (Sugitani et al.).

Sugitani et al. further specify, as shown in figure 11 and as stated in column 7 (lines 13 – 22), "Although not shown in the drawing, electrodes for input of signals are connected to these heating elements 302. As the connection method to be employed in this case, there may be utilized the multi-layer wiring method recently employed in semiconductor industries, in which electrically insulating films such as of $SiO_2$, $Si_3N_4$, polyimide, etc. and electroconductive films such as of Al, Au, etc. are arranged alternately by forming said electroconductive films according to photolithography to constitute a desired wiring pattern" (emphasis added by Examiner). This constitutes the teaching of a printhead integrated circuit for each ink reservoir. Additionally, Sugitani et al. clearly show, in figures 9 – 11, where each ink reservoir includes at least three discrete ink paths (discharging orifices 207) and a corresponding set of at least three inlet apertures (discharging orifices 207), each of the inlet apertures (207) being aligned with a respective ink path. Thus, Suzuki and Sugitani et al. by incorporation disclose at least one printhead integrated circuit that is positioned in the outlet to span the printing path, as claimed.

In summary, Suzuki et al. specifically disclose a multi-color elongate ink reservoir (5) assembly having at least two ink reservoirs that spans the printing path; however, Suzuki et al. do not disclose wherein the elongate ink reservoir that includes "at least three ink reservoirs for storing ink, each of the at least three ink reservoirs spanning a wide of the printing path."

On the other hand, Yuen also disclose an ink reservoir assembly with a plurality of ink reservoirs. More specifically, Yuen shows, in figure 3, an ink reservoir assembly (50) with three

ink reservoirs (16, 18, and 20) contained therein, wherein each of the three ink reservoirs span the entire width of the ink reservoir assembly (50).

Hence, the Examiner submits, at the time the invention was made, it would have been obvious to one with ordinary skill in the art to have modified the elongate ink reservoir assembly of Suzuki with the ink reservoir assembly of Yuen so as to form an elongate ink reservoir assembly defining at least three ink reservoirs for storing ink, each of the at least three ink reservoirs spanning a width of the printing path for the advantage of providing an ink reservoir assembly that has an extended useful life (see Yuen, column 1, lines 17-20).

As for **Claim 3**, Suzuki discloses, as indicated above, that the printhead maybe single integrated multicolor ink reservoir assembly that is elongate to span the printing path where the printhead integrated circuits are mounted in the opening of the ink reservoir assembly.

Yuen further teaches, as shown in figure 3, the ink reservoir assembly including a base member (lower part of cartridge; e.g., 14 in figure 1) and a cover member (upper part of cartridge; e.g., 12 in figure 1), the cover member (12) having a roof wall, a pair of opposed side walls and a pair of spaced inner walls (clearly shown in figure 3), the side walls and the inner walls depending from the roof wall and being generally parallel to each other (see arrangement of side internal walls 58) and the base member having a floor and a pair of opposed end walls and defining an opening (clearly shown in figure 3), the guide assembly being interposed between lower ends of the inner walls and the floor (The Examiner considers the guide assembly to correspond to the side internal walls 58 residing in the base member, e.g., 14 in figure 1) again. Also, see figure 3).

The Examiner respectfully notes that Yuen, when combined with Suzuki (and Sugitani et al. by reference), would result in a printhead that is elongated to span the printing path. Furthermore, the guide assembly and each individual ink reservoir would additionally be elongated to span the printing path. Nevertheless, the side profile shown in Yuen's figure 3 would be similar to the side profile of the elongated printhead as a result of the combination.

As for **Claim 4**, Yuen clearly shows in figure 3, wherein in which the guide assembly includes a pair of guide walls (side internal walls 58 residing in the base member) that extend from respective lower ends (portion where cover member 12 and base member 14 join together) of the inner walls inwardly towards the elongate opening to define the three distinct ink paths that terminate at respective sets of inlet apertures of the printhead integrated circuits (The Examiner considers the fact that the guide walls extend from the lower end of the cover member 12 to the lower end of the base member 14 to correspond to the "inwardly towards the elongate opening". The Examiner respectfully notes that the claim language does not specify that the guide walls must be non-parallel with respect to each other).

As for **Claim 9**, Yuen discloses, as shown in figure 3, wherein the guide assembly includes a first guide wall (The Examiner notes figure 3 shows two guide walls, each labeled 58. The first guide wall is the left wall as looking at the figure and the second guide wall is the right wall as looking at the figure) extending from a first inner wall (The first inner wall is upper or top-most inner wall in the assembly), and a second guide wall (The Examiner notes figure 3 shows two guide walls, each labeled 58. The first guide wall is the left wall as looking at the figure and the second guide wall is the right wall as looking at the figure) extending from a second inner wall (The first inner wall is upper or top-most inner wall in the assembly), the first

and second guide walls extending towards each other from the first and second inner walls respectively and terminating at the elongate opening (Each guide walls extends between the elongate opening at the bottom-most portion of the assembly and the top-most portion of the assembly. In either case, the first guide wall may extend from top to bottom or vice versa and the second guide wall may extend from the bottom to top or vice versa. Nevertheless, each terminates at the elongate opening).

As for **Claim 10**, Yuen discloses, as shown in figure 3, wherein the guide assembly spans a width substantially the same as that of the elongate ink reservoir, and the guide assembly is provided longitudinally adjacent to the elongate ink reservoir assembly (see Examiner's explanation below).

As stated above, Yuen disclose an ink reservoir assembly with a plurality of ink reservoirs. More specifically, Yuen shows, in figure 3, an ink reservoir assembly with three ink reservoirs (16, 18, and 20) contained therein, wherein each of the three ink reservoirs span the entire width of the ink reservoir assembly (50). The combination of Suzuki and Yuen would yield wherein the guide assembly spans a width substantially the same as that of the elongate ink reservoir, and the guide assembly is provided longitudinally adjacent to the elongate ink reservoir assembly, as claimed.

**Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,847,836) in view of Yuen (US 6,347,863 B1), as recited above with respect to Claim 3, in further view of the Examiner's Official Notice (MPEP § 2144.03).

As for **Claim 5**, neither Suzuki nor Yuen specify the material or method of construction of the printhead ink reservoir assembly. While Yuen shows, in figure 3, a molded assembly; Yuen doesn't specify a plastics material.

However, the Examiner respectfully takes **Official Notice** (MPEP § 2144.03) that both the concepts and advantages of molding printhead cartridges out of a plastics material are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have molded the printhead cartridges out of a plastics material for the sake of simplicity, cost, durability, and strength.

As for **Claim 6**, neither Suzuki, nor Sugitani et al., nor Yuen specify the material or method of construction of the printhead ink reservoir assembly. While Sugitani et al. show the particulars of the nozzles (inlet apertures); Sugitani et al. doesn't specify a number of air inlet openings that are treated to be hydrophobic to permit the ingress of air into the ink reservoirs as ink is fed from the ink reservoirs and to inhibit the egress of ink.

However, the Examiner respectfully takes **Official Notice** (MPEP § 2144.03) that both the concepts and advantages of incorporating a number of air inlet openings that are treated to be hydrophobic are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have treated a number of air inlet openings that are treated to be hydrophobic for the sake of reducing corrosion and enhancing the ability to clean and maintain the printhead.

Applicant argues, "Applicant disagrees with that the claimed arrangement of hydrophobically treated air inlets is well known and expected … Applicant respectfully requests documentary evidence in support of the above Official Notice."

The Examiner respectfully submits Baldwin et al. (US 5,600,358) in support of the Official Notice. Baldwin et al. show, in figures 1 and 2, an ink reservoir assembly with an air inlet labyrinth (30) that is hydrophobically treated to prevent the leakage of ink (see Baldwin et al., Column 4, lines 32-48). For this reason, the Examiner will maintain the rejection.

**(10) Response to Argument**

35 USC §103(a)

Suzuki discloses the following, as required by Claim1:

"A printhead assembly for a camera system having a chassis and a platen assembly that is mountable on the chassis, the platen assembly defining a printing path along which a print medium is passed, the print head assembly comprising:

an elongate ink reservoir assembly defining at least a **[plurality of ink reservoirs]** for storing ink, each of the at least **[plurality of ink reservoirs]** spanning a width of the printing path;

a guide assembly positioned in the elongate ink reservoir assembly, the guide assembly defining **[a plurality of discrete ink paths]** facilitating fluidic communication between each of **[the plurality of ink reservoirs]** and an outlet of the elongate ink reservoir assembly; and

at least one **[electrical component]** positioned at the outlet of the elongate ink reservoir assembly, the at least one **[electrical component]** substantially spanning a width of the printing path."

The portions of Claim 1 that are bolded and bracketed represent differences between what is claimed and what is disclosed by Suzuki. For instance, the claim requires "a least three

ink reservoirs," whereas Suzuki discloses a plurality of ink reservoirs while not specifying at least three. In another instance, the claim requires "at least three discrete ink paths," whereas Suzuki discloses a plurality of discrete ink paths while not specifying at least three.

Suzuki describes the printhead assembly in column 16 on lines 17 – 24 and on lines 43 – 48. In lines 17 – 24, Suzuki specifically states, "a full line type printhead having a length corresponding to the width of a maximum printing medium which can be printed by the printer, either the arrangement which satisfies the full-line length by combining a plurality of print heads as disclosed in the above specification or the arrangement as a single printhead obtained by forming print heads integrally can be used." In lines 43 – 48, Suzuki specifically states, "aside from a printing mode using only a primary color such as black or the like, at least one of a multi-color mode using a plurality of different colors or a full-color mode achieved by color mixing can be implemented in the printer either by using an integrated printhead or by combining a plurality of print heads."

These cited portion of Suzuki provide **clear evidence** that there is "an elongate ink reservoir assembly defining at least a plurality of ink reservoirs for storing ink, each of the at least plurality of ink reservoirs spanning a width of the printing path." In summary, Suzuki discloses a printhead assembly with an integrated ink reservoir with a plurality of ink channels therein. However, it is noted that while Suzuki indeed discloses multiple ink channels, Suzuki does not specify the actual number of ink channels. Thus, **at minimum**, Suzuki discloses that the multi-color elongate ink reservoir assembly has **at least two ink reservoirs**, both of which span the printing path. Accordingly, Suzuki does not disclose "at least three ink reservoirs for storing ink."

To overcome this deficiency, the Examiner introduced Yuen. Yuen is exclusively directed to a printhead/printer cartridge assembly that contains a plurality of ink reservoirs. To be specific, Yuen shows, in figure 3, an ink reservoir assembly (50) with three ink reservoirs (16, 18, and 20) contained therein, wherein each of the three ink reservoirs span the entire width of the ink reservoir assembly (50). Yuen's figures 1 and 3 show that the three ink reservoirs contained within the cartridge span from a left side of the cartridge to a right side of the cartridge.

Thus, if the print cartridge taught by Yuen were used in Suzuki's printhead assembly, the combined teachings yield Applicant's invention, as recited in Claim 1. In other words, Suzuki already teaches a printer cartridge that spans the width of the printing path, where that printer cartridge has a plurality of ink reservoirs. Yuen shows a printer cartridge with exactly three ink reservoirs that occupy the whole width of the printer cartridge. At the time the invention was made, the Examiner respectfully submits one with ordinary skill in the art would have combined the teaching of Yuen with Suzuki to form a printer cartridge/assembly that spans the width of the printing path and contain at three ink reservoirs.

Additionally, while the Examiner relied on Suzuki's (a →, ← b) to describe the actual "printing path"; the Examiner specifically clarified that Suzuki at least discloses a bubblejet type printhead that spans the width of the recording medium. The printhead ink reservoir assembly may be a multi-color printhead that is comprised of a series of adjacent ink reservoirs, each with at least one ink channel and a plurality of corresponding discharge nozzles and discharge openings, or a single integrated ink reservoir with a plurality of ink channels therein each with corresponding discharge nozzles and openings.

Applicant argues whilst the above portion of Suzuki may suggest a printhead integrated circuit spanning a width of the printing path, the above portion is silent as to an elongate ink reservoir assembly spanning a width of the printing path. Applicant argues, Col. 16, lines 17 – 24, describes only that a full line type printhead having a length corresponding to the width of a maximum printing medium can be used and that no mention is made of an elongate ink reservoir also spanning a width of the printing path.

The Examiner respectfully disagrees with Applicant's position. Claim 1 simply recites, *inter alia*, "an elongate ink reservoir assembly substantially spanning a width of the printing path." This language is written broadly enough such that it does not actually require the portion of the "ink reservoir assembly" where the ink is actually stored to also span the width of the printing path.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

**/Justin P. Misleh/**
**Primary Examiner, Group Art Unit 2622**
**January 19, 2010**

Conferees:
/Jason Chan/ Supervisory Patent

Examiner, Art Unit 2622

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